Section 1. Product and Company Identification

Product Identification: QC-TMFM-C
MSDS Number: QC-TMFM-C
Company Identification: High-Purity Standards
P.O. Box 41727
Charleston, SC 29423
Telephone: (843) 767-7900
FAX: (843) 767-7906
In case of emergency call INFOTRAC: 800-535-5053

Section 2. Chemical Composition

Component	CAS/EINECS Registry #	Percent Concentration	ACGIH TLV	OSHA PEL
Arsenic	7440-36-0/231-146-5	0.1	0.01 mg/m^3	10 µg/ m^3
Barium Carbonate ($BaCO_3$)	513-77-9/208-167-3	<0.1 (as Ba)	0.5 mg/m^3	0.5 mg/m^3
Beryllium Acetate ($Be_4O(C_2H_3O_2)_6$)	19049-40-2/242-785-4	<0.1 (as Be)	0.002 mg/m^3	0.002 mg/m^3
Cadmium	7440-43-9/231-152-8	<0.1	0.002 mg/m^3 (respirable particulate)	0.005 mg/m^3
Chromium	7440-47-3/231-157-5	<0.1	0.5 mg/m^3	1 mg/m^3
Cobalt	7440-48-4/231-158-0	<0.1	0.02 mg/m^3	0.1 mg/m^3
Copper	7440-50-8/231-159-6	<0.1	0.2 mg/m^3 (fumes)	0.1 mg/m^3 (fumes)
Iron	7439-89-6/231-096-4	<0.1	10 mg/m^3	5 mg/m^3
Lead	7439-92-1/231-100-4	<0.1	0.05 mg/m^3	0.05 mg/m^3
Manganese	7439-96-5/231-105-1	<0.1	0.2 mg/m^3	C 5 mg/m^3
Nickel	7440-02-0/231-111-4	<0.1	1.5 mg/m^3	1 mg/m^3
Silver	7440-22-4/231-131-3	<0.1	0.1 mg/m^3	Not Available
Thallium	7440-28-0/231-138-1	<0.1	0.1 mg/m^3	0.1 mg/m^3
Ammonium Metavanadate (NH_4VO_3)	7803-55-6/232-261-3	<0.1 (as V)	0.05 mg/m^3	Not Available
Zinc	7440-66-6/231-175-3	0.1	5 mg/m^3	1 mg/m^3
Nitrocellulose (Pyroxylin)	9004-70-0/Unlisted	80-98	Not Available	Not Available
Cellulose Acetate	9004-35-	0-20	Not Available	Not Available

* See Certificate of Analysis for purity.

	7/Unlisted			
Nitric Acid	7697-37-2/231-714-2	0.1-2	2 mg/kg	5 mg/m^3
Tartaric Acid	87-69-4	0.1-2	Not Available	Not Available

Section 3. Hazard Identification

Emergency Overview: Beryllium, Cadmium, and Nickel are a probable human carcinogen. Emergency Overview: Beryllium, cadmium, and nickel are a probable human carcinogen. Arsenic, cadmium, and lead are highly toxic if ingested or inhaled. If ingested, do NOT induce vomiting. Dilute with water and call a physician.

Target Organs: Eyes, skin, respiratory system, immune system, nasal cavities, teeth, blood, bones, kidneys, central nervous system. Increases risk of lung, liver, kidney, and bladder cancer with prolonged exposure.

Skin/Eye Contact: Skin contact can cause irritation and/or cracked skin. Eyes can be damaged by irritation or mechanical injury from the particulate matter.

Inhalation: May cause irritation and difficult breathing. Toxic if burning.

Ingestion: Ingestion of arsenic compounds may be poisonous, leading to death. Animal studies indicate that prolonged ingestion of some soluble nickel compounds may affect the blood, bone marrow, thymus, spleen, kidneys, and immune system. Cadmium is a poison that accumulates in the liver and kidneys. May cause digestive tract irritation, central nervous system depression and kidney damage.

Section 4. First Aid Measures

Inhalation: Remove to fresh air. Give artificial respiration if necessary and seek immediate medical advice.

Skin/eye Contact: Remove contaminated shoes and clothing. Flush contaminated area with plenty of water for at least 15 minutes. Call a physician if irritation develops.

Ingestion: Rinse mouth with water. If swallowed, do NOT induce vomiting. CALL A PHYSICIAN in all cases.

Section 5. Fire Fighting Measures

Fire & Explosion Hazards: The filter is a severe fire hazard. Once ignited, membranes will burn very rapidly. May release toxic fumes upon burning.

Extinguishing Media: Use any extinguishing media that is suitable for the surrounding area.

Specific Methods: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. This is especially important if this material becomes airborne.

Section 6. Accidental Release Measures

In solid form this material does not represent a health risk. If appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment.

Section 7. Handling and Storage

Store in a cool, dry, ventilated storage area in a tightly sealed container. Store away from sources of heat, ignition and oxidizing agents. Refer to Section 8 for personal handling instructions.

Section 8. Exposure Controls and Personal Protection

Engineering Controls: Under normal use conditions no specific controls are needed, normal room ventilation is adequate. Otherwise, use in vent hood.
Respiratory Protection: If possibility of material burning, wear suitable respirator.
Personal Protection: Wear proper gloves, safety glasses with side shields, lab coat/apron.

Section 9. Physical and Chemical Properties

Form: Solid
Molecular Weight: N/A
Melting Point: N/A
Boiling Point: N/A
Vapor Pressure (mm): N/A
Vapor Density (air+1): N/A
Specific Gravity (H_2O = 1): N/A
Solubility in H_2O: Insoluble at 20°C
Danger of Explosion: Not Explosive
Autoignition temperature: 130°C minimum, determined on aged membrane.
Appearance: White porous solid disks
Odor: Odorless
pH: N/A

Section 10. Stability and Reactivity

Stability Indicator: YES
Conditions to Avoid: Temperatures above 55°C, flames, sparks, and other sources of ignition and contact with incompatible materials.
Incompatibles: Strong oxidizing agents, acids.
Hazardous Decomposition Products: Oxides of carbon. NO_x compounds including nitric oxide (NO), nitrogen dioxide (NO_2), nitrous oxide (N_2O) and nitric acid mist or vapor. May release toxic metals upon burning.
Hazardous Polymerization: None expected.

Section 11. Toxicological Information

Beryllium, cadmium, and nickel are investigated as a tumorigens. Arsenic and lead are highly toxic.

RTECS#: :
Nitrocellulose – QW0970000

As- CG0525000	$BaCO_3$- CQ8600000	$Be_4O(C_2H_3O_2)_6$ –DS29750000	
Cd- EU9800000	Cr- GB4200000	Co- GF8750000	Cu- GL5325000
Pb- OF7525000	Mn- OO9275000	Ni- QR5950000	Ag- VW3500000
Tl- XG3425000	NH_4VO_3- YW0875000	Zn- ZG8600000	

Toxicity Data:
LD_{50} Oral, Rat: (Nitrocellulose) >5 g/kg; LD_{50} Oral, Rat: (Cellulose Acetate) >3.2 g/kg; LD_{LO} (As) 763 mg/kg; LD_{LO} Oral, Human: ($BaCO_3$) 17 mg/kg; TD_{LO} Intratracheal, Rat: ($Be_4O(C_2H_3O_2)_6$) 13 mg/kg; LD_{LO} Oral, Human: (Cd) 2330 mg/kg; LD_{50} Unreported Route, Rat: (Cr) 27.5 mg/kg; LD_{LO} Oral, Rabbit: (Co) 750 mg/kg; TD_{LO} Oral, Human: (Cu) 120 µg/kg; TD_{50} Oral, Woman: (Pb) 450 mg/kg/6 year; LD_{50} Oral, Rat: (Mn) 9 g/kg; LD_{50} Oral, Mouse: (Ni) 50 mg/kg; TD_{LO} Implant; TD_{LO} Oral, Man: (Tl) 5,714 µg/kg; LD_{50} Oral, Rat: (NH_4VO_3) 58,100 µg/kg; LD_{LO} Oral, Duck: (Zinc) 388 mg/kg.

Section 12. Ecological Information

Ecotoxicological information: Do not allow material to reach ground water, water bodies, or sewage system**.** Beryllium and its compounds are considered to have high acute and chronic toxicity to aquatic life. Beryllium is more toxic in soft water than in hard water.

Section 13. Disposal Considerations

General: Follow federal, state and local regulations for beryllium and nitrocellulose compounds.

Section 14. Transport Information

D.O.T. Classification: Hazardous by IATA and 49CFR regulations (based on concentration of acid).
D.O.T. Shipping Name: Nitric Acid (0.1-2%)
D.O.T. Hazard Class: 8
U.N./N.A. Number: 2031
Packing Group: II
D.O.T. Label: Corrosive (8)

Section 15. Regulations (Not meant to be all inclusive-selected regulation listed)

TSCA Status: Components of this solution are listed on the TSCA Inventory.
RCRA Status: Yes, NH_4VO_3 (7803-55-6)
SARA: Subject to the reporting requirements of Section 313 of SARA Title III and of 40 CFR 372
Risk Phrases: R11, R21, R28, Highly flammable. Harmful in contact with skin. Very toxic if swallowed.
Safety Phrases: S36/37/39, 41, 33 Wear suitable protective clothing, gloves and eye/face protection. In case of fire, do not breathe fumes. Take precautionary measures against static discharge.
Note: Restricted to Professional Users.
WHMIS Information (Canada): B4: Flammable solids.
D2B: Toxic Material Causing Other Toxic Effects.

Section 16. Other Information

HPS products are intended for laboratory use only. All products should be handled and used by trained professional personnel only. The responsibility for the safe handling and use of these products rests solely with the buyer and/or user. The MSDS was prepared carefully and represents the best data currently available to us; however, HPS does not certify the data on the MSDS. Certified values for this material are given only on the Certificate of Analysis.

Theodore C. Rains, Ph.D.